PN-ACQ-513

A COMPARISON OF LEVEL OF DEVELOPMENT AMONG COASTAL AND NON-COASTAL COMMUNITIES IN NORTH SULAWESI AND SOUTH SUMATERA

BRIAN R. CRAWFORD
PRICIELLA KUSSOY
Coastal Resources Management Project -Indonesia
RICHARD B. POLLNAC
Coastal Resources Center - University of Rhode Island
M. FEDI A. SONDITA
Center for Coastal and Marine Resources Studies - Bogor Agricultural University

ABSTRACT

This paper examines the question as to whether coastal communities and fishers in Indonesia are the poorest of the poor. It reviews recent socio-economic studies on coastal communities in Indonesia, and provides a quantitative analysis of secondary data on coastal and non-coastal communities in North Sulawesi in relation to IDT and Swa development classifications, as well as percent and density of fishers and farmers for coastal villages in Minahasa. It also provides an analysis of secondary data on income levels of farming and fishing communities in South Sumatera. It concludes that coastal communities in Minahasa, North Sulawesi tend to be less developed than non-coastal communities. The less developed status of coastal communities is not related to fisher density, fisher percent, or farmer density and has only a weak relationship to percent farmers. Isolation appears to be an important factor. In South Sumatera, percent fishers in a community was positively correlated with higher average household income while percent farmers was negatively correlated with higher income. The paper concludes that the generalized statement that coastal communities are less developed and fishers are the poorest of the poor in Indonesia cannot be supported due to the significant diversity among the level of development of coastal communities and income levels of fishers in various localities. Coastal development and resource management planning programs need to take such diversity into account, which suggests a need for more decentralized approaches to governance.

Keywords: income, poverty, fishers, coastal villages, level of development, decentralization

ABSTRAK

Tulisan ini menganalisa mengenai pernyataan bahwa masyarakat pesisir dan nelayan Indonesia merupakan kelompok termiskin, dan mencoba mengkaji studi sosial ekonomi yang sudah dilakukan sebelumnya tentang masyarakat pesisir di Indonesia. Studi ini didukung pula analisis kuantitatif data sekunder kelompok masyarakat pesisir dan non pesisir di Sulawesi Utara dalam kaitannya dengan klasifikasi IDT dan swa-pembangunan, maupun persentase dan kepadatan nelayan dan petani di desa-desa pesisir di Minahasa. Data skunder tingkat pendapatan petani dan nelayan di Sumatera Selatan dijadikan perbandingan dasar analisis pula. Hasilnya menunjukkan bahwa masyarakat pesisir Minahasa, Sulawesi Utara cenderung lebih miskin dibandingkan masyarakat non pesisir di daerah itu. Akan tetapi pernyataan tersebut tidak ada kaitannya dengan kepadatan dan persentase nelayan, atau kepadatan petani dan persentase petanipun sangat kecil sekali. Anggapan ini muncul sebagai faktor penting. Dari hasil laporan di Sumatera Selatan, faktor persentase nelayan dalam suatu kelompok berkorelasi positif dengan tingkat pendapatan rata-rata rumah tangga yang lebih tinggi, sementara tingkat pendapatan petani yang lebih tinggi berkorelasi negatif terhadap persentase petani di daerah tersebut. Makalah ini menyimpulkan bahwa pernyataan

umum mengenai masyarakat pesisir merupakan kelompok termiskin tidak dapat didukung karena keragaman diantara tingkat kemajuan dan pendapatan nelayan di daerah yang berbeda. Program -program perencanaan dalam pengelolaan pengembangan wilayah pesisir dan sumberdayanya hendaknya memasukkan keragaman masalah ke dalam program, yang menyarankan suatu pendekatan yang lebih terdesentralisasi dari pemerintah.

Kata-kata kunci: pendapatan, kemiskinan, nelayan, desa-desa pesisir, tingkat perkembangan, desentralisasi

INTRODUCTION

A number of recent reports and socio-economic studies in Indonesia have made statements concerning poverty and income levels of coastal communities and fishers. A Ministry of Environment report stated that fishers with small boats generally live below the poverty level and that coastal villages generally have a poor quality of life (MSE, 1996). A North Sulawesi (MREP, 1996a) study reports that fishing in the region is carried out by poor fishers and that most of the residents in the coastal area studied have low incomes. The report also states that many of the poor villages which receive IDT funds (a government program for poor villages) have residents which are fishers. In addition, they conclude that the coastal villages surveyed are poor due to the fact that they rely on fishing, have poor marketing systems, an absence of cold storage facilities and because they are isolated. The report however, contains no quantitative data backing these conclusions. In another study of 132 households surveyed in four coastal communities on the east coast of Minahasa (Pollnac *et al.*, 1998), fisher households manifest a lower level of material style of life as indicated by items such as household structural features, furnishings, and appliances. This suggests that fisher households in these communities tend to be poorer than households where fishing is not one of the top three ranked productive activities.

A study from Irian Jaya reports that fisher incomes are low to medium (MREP, 1996b). No reference is made to actual average fisher incomes or what they are compared to for concluding their incomes are low to medium. A South Sulawesi study finds that fishers in the communities surveyed have no income from sources other than fishing (MREP, 1996c). Ranges of income for respondents in the coastal communities surveyed is reported, but no conclusions on the poverty level of fishers or the coastal communities surveyed are made. A review of data in their report however, indicates that coastal fishers have incomes lower than brackishwater farmers. Brackishwater farmers are the highest income group in all the coastal villages sampled. However, in comparing incomes with rice farmers, some villages show higher income from fishing whereas others show higher income from rice farming.

In contrast to the above mentioned studies which tend to highlight the poverty of coastal communities and fishers, a study from South Sumatera (MREP, 1995) concludes that in all of the coastal communities studied, household income levels are above the poverty level. They also report that coastal communities have a high level of occupational multiplicity dominated by farming and fishing, which may be one of the factors accounting for the high income levels. In addition, they conclude that household income levels for fisher crews are the lowest while levels for fishers who own good gear is the highest. A study of the economic value of fisheries in Bunaken National Marine Park, North Sulawesi (NRMP, 1996) concludes that fishers in the park are not poor and income levels are not low. Income levels for fishing (artisanal and commercial) and seaweed farming households are reported to be two to three times higher than income levels of unskilled labor single income households in Manado, the major urban center of North Sulawesi. An earlier study of fishing communities in Bunaken Park (Pontoh, 1991) concludes that fishing incomes are from 62 to 75 percent lower than the national per capita income. However, no information is provided on how non-coastal communities or non-fisher households in North Sulawesi compare to this level.

None of the studies described above have made

detailed comparisons between coastal and non-coastal communities, and only a few have attempted to compare fishers to other occupational groups. However, many of the reports make statements about the poverty of coastal communities and fishers with little or no supporting evidence. The literature review indicates that such statements may be true for one region or village but not for another. Hence, this previous research does not support a generalized conclusion for Indonesia that coastal villages are less developed and fishers are the poorest of the poor. This can have important implications for coastal resources management, development, planning, and policy programs. If based on inaccurate assumptions or conclusions, these programs may not achieve the expected results.

Testing assumptions concerning income levels of individuals in fishing as well as other occupational categories can be problematic. It is often difficult to obtain information on income levels or the standard of living of fishers as well as individuals in other rural occupations. In addition, there is often no clear cut distinction among occupations of individuals as being a full-time fisher or farmer. Often, individuals and households in rural communities obtain income from several occupational sources and engage in a multitude of productive activities. This is particularly evident in coastal communities of Minahasa where households can engage in four or more productive activities, which may or may not be a combination of land and sea-based activities (Pollnac *et al.*, 1997). It is also important to note that not all productive activities result in income, and it is typical for rural coastal households to engage in both income generating and subsistence activities. By concentrating only on income, we may exclude many important productive activities which contribute to the quality of life of coastal household members, but which can be difficult to place a monetary value on. Additionally, many fishers are also part-time farmers and visa versa, so clear cut distinctions between fishers and farmers as occupational categories can be meaningless. It can be argued that exploitation of multiple land and sea-based coastal resources for income generating and subsistence activities is an optimal adaptation for coastal communities. However, it also makes the job of social science research in these communities more challenging.

Rather than attempting to look at differences in the income levels of different occupational groups, another strategy is to examine differences in the level of development or well being of various types of communities. Community-based coastal resources management programs typically target the community as a whole rather than any one occupational group. From a coastal resources management and development planning policy perspective, understanding how coastal communities fare relative to other non-coastal communities can be an important consideration and justification for targeting specific programs towards coastal communities.

METHODOLOGY

Minahasa and North Sulawesi: Information on the development status of villages (as defined by government agencies and available from existing secondary data sources) within North Sulawesi and the Minahasa Regency are analyzed to determine whether coastal communities are in general, less developed or poorer than their non-coastal counterparts. Two types of Government of Indonesia (GOI) classifications for level of village development are used. One is based on a system of classification of villages as IDT (*Inpres Desa Tertinggal*) or non-IDT (poor or non-poor villages, respectively) devised by BAPPENAS (National Development Planning Board), BPS (Central Statistics Bureau) and Depdagri (Department of Home Affairs) to provide special development funds to "poor" villages (BPS, 1995). Criteria for classifying villages as IDT or non-IDT includes opinions of local government officials as well as summary scores on approximately 18 variables such as health, education, communications and transportation facilities, drinking water supply, electrification, occupation of residents, among others. The other system of classification devised by the Ditjen BANGDA (Directorate General for Regional Development) and *Kantor Pembangunan*

Masyarakat Desa (Village Community Development Office) divides villages into three "Swa" (self-effort) categories: *Swadaya* (self help community group), *Swakarya* (self developed community group) and *Swasembada* (self sufficient community group) (PMD,Kepala Bidang Pengembangan Desa, personal communication, 1998). These three categories grade villages as less-developed, middle-developed and more-developed respectively. This classification is based on six criteria including public education and health; safety, law and order; level of village economy, community participation, understanding of the basic principals of the state ideology of *Pancasila*, and the awareness of Indonesia as a nation-state.

A review of statistics (BPS, 1996) for the development classifications are made for North Sulawesi Province to determine whether there are relationships between percent of coastal villages within *kabupaten* with the percent of villages in the various development classifications. A more detailed analysis of village level information for the Minahasa regency is then conducted to further examine the relationships. Information on IDT (BPS, 1995), and "Swa" (BPS, 1993) classifications obtained for all coastal and non-coastal villages in Minahasa is compared using statistical analyses.

Several hypotheses are tested which might explain the low level of development of coastal communities in Minahasa. Village level data obtained (BPS, 1993) from various Bureau of Statistics documents are analyzed to see if there is a relationship between the various development categories and percent of fishers or farmers, or fisher and farmer density in the coastal villages. Percent fishers and percent farmers (the largest occupational subcategories in rural Minahasan coastal villages) are calculated by dividing the number of individuals identified as employed in each category by the total village population. Fisher density and farmer density are determined for each coastal village by dividing the number of individuals identified as employed in this category by the total land area of the village. A t-test is used to examine differences of the means of these variables with the IDT and Swa classifications. Due to the low frequency of villages classified as *Swadaya*, the three-level Swa classification is collapsed into a low-swa (*swadaya* and *swakarya*) and high-swa (*swasembada*) classification for this analysis. Another possible explanation for the low level of development of coastal communities is that geographic isolation may be a contributing factor. This hypothesis is tested by scoring all coastal villages as either isolated or non-isolated and comparing this with the village development categories. Isolated communities are defined as those on offshore islands, or with poor road infrastructure to and from the village.

South Sumatera: An analysis of summary data reported on 19 villages from South Sumatera (MREP, 1995) is conducted to test differences between percent fishers and farmers with respect to average household income levels. A Pearson correlation is ran on these data. Two of the villages in this group are non-coastal (do not border on the coast) but have marine fishers as an occupational group within the community. A scatter plot of percent fishers versus percent farmers for the 19 villages in the study is made to determine potential clustered relationships among the villages. The raw data on individual household income is unavailable for analysis. Therefore, average annual household incomes for each cluster reported in the results are the averages of the village averages, not average household income of all respondents surveyed in the villages which are contained within the cluster. Since an average of averages can be grossly misleading where sample sizes in each subgroup (village) are different or unknown, the raw data for average household income of each village can be found in Table 6.

RESULTS

North Sulawesi: The number and percent of coastal villages in North Sulawesi for Regencies (*Kabupaten*) which are predominantly rural administrative units, versus urban (*Kotamadya*) administrative units are provided in Table 1. The overall percentage of coastal versus non-coastal villages for urban and rural administrations are the same. However, they exhibit a wide range of variation from one administration to the other.

Table 1: Number and percent of coastal and non-coastal villages in North Sulawesi

Kabupaten/ Kotamadya	Coastal Villages	Non-Coastal Villages			Total Non-Coastal Villages	Total Villages	Percent Coastal Villages
		Valley	Mt. Slope	Inland			
Kab. Minahasa	97	36	137	227	400	497	19.52
Kab. Gorontalo	91	13	62	155	230	321	28.35
Kab. Bolaang Mong.	75	24	34	129	187	262	28.63
Kab. Sangihe Talaud	98	8	26	11	45	243	81.48
Subtotal	461	81	259	522	862	1323	34.84
Kodya Gorontalo	5	0	7	33	40	45	11.11
Kodya Manado	22	3	8	35	46	68	32.35
Kodya Bitung	29	0	9	6	15	44	65.91
Subtotal	56	3	24	74	101	157	35.67
TOTAL	517	84	283	596	963	1480	34.93

Source: Statistik Potensi Desa se-Sulawesi Utara, 1996

Table 2: A comparison of percent IDT and percent coastal villages in North Sulawesi

Kabupaten/Kotamadya	Total Villages	No. IDT	% IDTVillages	%Coastal Villages
Kab. Minahasa	497	109	21.93	19.52
Kab. Gorontalo	321	121	37.69	28.35
Kab. Bolaang Mong.	262	92	35.11	28.63
Kab. Sangihe Talaud	243	155	63.79	81.48
Subtotal	1323	477	36.05	34.84
Kodya Gorontalo	45	13	28.89	11.11
Kodya Manado	68	7	10.29	32.35
Kodya Bitung	44	12	27.27	65.91
Subtotal	157	32	20.38	35.67
TOTAL	1480	509	34.39	34.93

Source: Statistik Potensi Desa se-Sulawesi Utara, 1996

Table 3: A comparison of percent "Swa" category villages and percent coastal villages in North Sulawesi

Kabupaten/ Kotamadya	Total Villages	No. Swa Daya	No. Swa Karya	No. Swa Sembada	% Swa Daya	% Swa Karya	% Swa Sembada	% Coastal Villages
Kab. Minahasa	497	28	176	292	5.6	35.4	58.8	19.52
Kab. Gorontalo	321	51	162	101	15.9	50.5	31.5	28.35
Kab. Bolaang Mong.	262	19	112	115	7.3	42.7	43.9	28.63
Kab. Sangihe Talaud	243	25	137	70	10.3	56.4	28.8	81.48
Subtotal	1323	123	587	578	9.3	44.4	43.7	34.84
Kodya Gorontalo	45	0	0	45	0	0	100	11.11
Kodya Manado	68	5	8	55	7.4	11.8	80.9	32.35
Kodya Bitung	44	0	3	41	0	6.8	93.2	65.91
Subtotal	157	5	11	141	3.2	7.0	89.8	35.67
TOTAL	1480	128	598	719	8.6	40.4	48.6	34.93

Source: Statistik Potensi Desa se-Sulawesi Utara, 1996
Note: Not all villages are classified as one of the three "swa" categories, so percents do not always sum to 100%.

Table 4: Comparison of fisher and farmer population density and percent of total population across IDT and non-IDT coastal villages in North Sulawesi

VARIABLE	NON-IDT	SD	IDT	SD	T-TEST	DF	PROB.
Farmer Density	0.691	1.190	1.302	3.257	1.294	99	>0.05
Farmer Percent	0.255	0.126	0.282	0.145	1.029	99	>0.05
Fisher Density	0.738	4.634	1.341	6.204	0.558	99	>0.05
Fisher Percent	0.045	0.053	0.064	0.078	1.441	99	>0.05
N	55		46				

Source: Analysis Statistik P. Besi Desa se-Sulawesi Utara 1996

Table 5: Comparison of fisher and farmer population density and percent of total population across low-swa and high-swa coastal villages in North Sulawesi

VARIABLE	LOW SWA	SD	HI SWA	SD	T-TEST	DF	PROB.
Farmer Density	1.034	2.853	0.895	1.689	0.294	99	>0.05
Farmer Percent	0.296	0.143	0.234	0.119	2.378	99	<0.02
Fisher Density	0.335	1.587	1.791	7.681	1.361	99	>0.05
Fisher Percent	0.063	0.066	0.042	0.065	1.545	99	>0.05
N	47		54				

Source: Analysis Statistik P. Besi Desa se-Sulawesi Utara 1996

Table 6: Average annual household income in 19 villages in South Sumatera in 1994 - 1995.

Village	Occupational Groups (Percent)			Income
	Fisher	Farmer	Other	(Rupiah)
Cluster A				
Permis	08	20	73	5,760,263
Bangka Kota	10	33	57	4,321,324
Cluster B				
Batu Batumpang	13	66	21	3,252,169
Templang	20	72	07	2,860,799
Tanjung Niur	25	61	15	2,860,856
Sebagin	29	61	10	5,981,924
Cluster C				
Toboal Kota	32	32	36	1,538,179
Air Nyatoh	37	28	35	3,018,018
Tanjung Ketapang	37	37	26	2,125,163
Belo Laut	41	34	25	3,016,986
Sungai Selam Bawah	49	34	17	2,314,911
Kundi	57	34	09	4,475,580
Cluster D				
Tanjung	51	03	46	2,514,678
Sungsan 4	65	00	35	9,081,625
Sungai Jurija	81	00	19	3,876,563
Kuala Sugihan	85	00	15	6,403,941
Sungai Lumpur	88	00	12	5,947,714
Sungsan 3	89	01	10	8,419,021
Sungsan 2	91	01	09	8,956,566

Source: MREP, 1995.

Slightly more than one third of all villages in North Sulawesi are coastal. The percentage of coastal and IDT villages in the various administrations is compared in Table 2. The rural administrations have a higher percentage of IDT villages than urban administrations. Within rural administrations, those with a higher percentage of coastal communities also have a higher percentage of IDT villages. The urban administrations show no such distinction.

A comparison of percent coastal and percent of categories of "Swa" villages in North Sulawesi is presented in Table 3. Urban administrations tend to have a higher percentage of more-developed (*Swasembada*) villages than rural administrations. The majority of urban administration villages also fall into the more-developed category. The rural administrations tend to have slightly more less-developed (*Swadaya*) villages than urban administrations. The rural administrations have substantially more middle-developed (*Swakarya*) and substantially less more-developed (*Swasembada*) villages. The relationship between percent coastal and percent "Swa" categories is less distinct for rural administrations and no relationship is evident for urban administrations. All urban administrations have a higher percentage of

Swasembada villages than the rural administrations.

Minahasa has the lowest percentage of coastal and IDT villages among the *Kabupaten* administrations. In addition, Minahasa has the highest percentage of *Swasembada* and lowest percentage of *Swadaya* villages for *Kabupaten* administrations. The IDT and "Swa" classifications suggest that Minahasa is one of the more developed Kabupatens within the Province of North Sulawesi. Minahasa has a similar percentage of IDT villages (21.9 percent) as the average for *Kotamadya* administrations (20.4 percent). However, the "Swa" classifications rank it lower than the urban administrations, but the highest among the rural Kabupatens.

The relationship between percentage of coastal villages with IDT and Swa classifications aggregated at the *Kabupaten* level suggests that there may be a relationship between coastal villages and the Swa and IDT classifications. Caution is needed in attempting to draw parallels to urban (*Kotamadya*) administrations where this relationship does not appear to hold.

A more detailed analysis of village level data in the Minahasa Regency may provide additional information concerning the relationship between coastal residence and level of development. Out of a total of 495 villages in Minahasa, 111 are classified as coastal. (BPS, 1993). Comparing coastal and inland villages in Minahasa on the basis of IDT classification indicates that 47 percent of the coastal villages are classified as IDT in contrast to only 15 percent of the inland villages. This difference is statistically significant ($\chi^2 = 51.36$, df = 2, phi = 0.32, $p < 0.001$). Similarly, when comparing coastal and inland villages on the basis of the "swa" categories, 75 percent of the inland are classified as *swasembada* (the highest level) in contrast to only 45 percent of the coastal ($\chi^2 = 35.68$, df = 2, phi = 0.27, $p < 0.001$). These results indicate that coastal villages tend to have more IDT classified villages and more villages classified into lower "Swa" categories. Therefore, coastal communities in Minahasa are more likely to be poorer or less developed than their non-coastal counterparts. These findings suggest that some characteristic of the coastal villages has impeded their development.

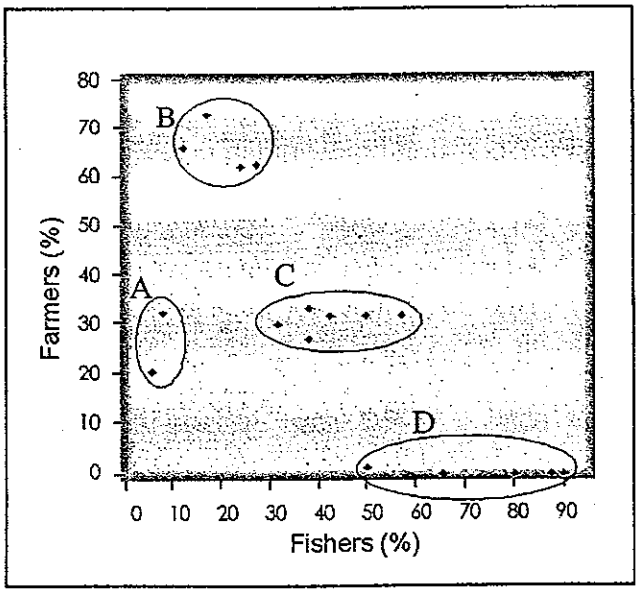
Results of the analysis testing the hypotheses that percent fisher and farmer, and fisher and farmer density may be related to level of development are presented in Tables 4 and 5. Tables 4 & 5 indicate that there is no difference in fisher density or percent fishermen in the different development classifications of coastal villages. The means in the tables are not to be considered as representing overall mean fisher density or mean percent fisher since the population of the included villages varies. There is no significant difference in percent farmers in IDT and non-IDT coastal villages. However, there is a difference in percent farmer in low-swa (*swadaya and swakarya*) and high-swa (*swasembada*) coastal villages. Coastal villages with a higher percent of farmers tend to be classified as low-swa. While this is statistically significant, the actual difference is quite small (.296 versus .234) suggesting it may not be a useful factor in explaining differences in level of village development, particularly considering there was no significant difference for this variable in the IDT classifications.

One potential explanation for this difference may be that arable land in coastal communities is less available or less fertile, or irrigation and water resources are not as well developed, resulting in lower productivity and potential income. Therefore, coastal communities with more farmers may tend to be poorer for this reason. Nevertheless, farmer density is not significantly different in the different development classifications of coastal villages. Since not all land within a community is arable, farmer density (number of farmers per unit of total village land area) may not be a good factor for explaining the level of development or poverty status of coastal communities. Calculating farmer density using total arable land rather than total land may be a better variable to use in future analyses of this nature.

Since fisher percent and fisher density does not seem to be a significant factor, other factors may be more important in explaining the difference in the level of development of coastal communities. When comparing isolation with IDT classifications, only 42 percent of non-IDT coastal villages are isolated

whereas 80 percent of IDT coastal villages are isolated (χ^2 = 16.475, df = 1, phi = 0.387, p < 0.001). This relationship is similar for Swa classifications where only 34 percent of Swasembada (high-swa) coastal villages are isolated while 82 percent of *Swadaya* and *Swakarya* (low-swa) coastal villages are isolated (χ^2 = 25.819, df = 1, phi = 0.484, p < 0.001). Hence, geographic isolation appears to play a role in the development of coastal villages.

South Sumatera: Percent fishers in the South Sumatera communities is positively correlated (r = 0.568, p < .02) with average household income, and percent farmers in the community is negatively correlated (r = -0.543, p < .02) with average household income. Hence, coastal communities with higher percentages of fishers tend to have higher average household incomes, and coastal communities with higher percentages of farmers tend to have lower average household incomes. In this case, communities with a high percentage of fishers on average are not the poorest of the poor, and the presence of large numbers of fishers tends to increase average household incomes in those villages.



Data Source: MREP, 1995.

Figure 1: Scatter plot of percent fishers and farmers for 19 Villages in South Sumatera 1994 - 1995

A scatter plot of percent fishers versus percent farmers for the 19 villages in the study is presented in Figure 1. The villages are clustered into four categories representing different occupational groups. The A cluster can be characterized as business and service dominated villages with next to the highest average annual household incomes (see Table 6). The B cluster are farmer dominated villages with next to the lowest average annual household incomes. In two-thirds of the cluster C villages, fishers outnumber farmers, but in one-third of the villages, fishers equals farmers. These villages have the lowest average annual household incomes. The cluster D villages are fisher dominated non-farming villages with the highest average household incomes. Average household incomes of fisher dominated villages is equal to or greater than farmer dominated villages and more on par with the business and service dominated villages. In these South Sumatera villages, the presence of fishers tends to increase average household incomes in the community and places them as some of the better off communities. This is contrast to the results of the village analysis in Minahasa where percent fishers is not related to the level of village development, and the four east coast villages analyzed (Pollnac *et al.*, 1998), where fisher households tend to have lower levels of material style of life items than farming households. The Bunaken Marine Park study (NRMP, 1996), however, produced similar results to the South Sumatera analysis, concluding that fishers are not poor.

DISCUSSION

North Sulawesi, and Minahasa: In the Minahasa Regency of North Sulawesi, coastal communities tend to be less developed or poorer than non-coastal villages. This relationship is based on the definition and criteria of the Government of Indonesia IDT and "Swa" development classifications. While coastal villages in Minahasa tend to be poorer than non-coastal villages, not all coastal villages are poorer than their non-coastal neighbors. This is a statistical relationship, and one must remember that more than one-half the coastal

villages in Minahasa are non-IDT. Furthermore, this information does not provide us with any direct indication of whether fishers as an occupational group are poorer than other occupational categories.

The reasons why coastal communities in Minahasa tend to be less developed are not fully understood. It may be due to ecological differences of coastal communities (agricultural soils may be poorer, freshwater supply less available), or that infrastructure (for marketing marine or agricultural produce) is less developed in comparison with their non-coastal neighbors. There is no indication that percent fishers in a community or the number of fishers per unit area of village land is related to level of development. The percentage of farmers in the community may have some influence, but this relationship is weak and needs further investigation. Geographic isolation, however, is a relatively strong predictor of coastal community development as defined here. This suggests that improvements in transportation infrastructure can be an important strategy to foster the development of coastal communities.

While we have no data to support this assertion, another potential reason why coastal communities tend to be less developed in Minahasa may be that government development programs have not targeted coastal communities as much as perhaps they should. This suggests that further research is necessary. In addition, government programs designed for all communities regardless of geographic location may not be appropriate for coastal communities and therefore may have less of an impact. Another explanation may be that the Swa and IDT classifications tend to overemphasize factors such as physical facilities (schools, health centers, etc.). This might tend to magnify infrastructure differences between communities rather than accurately reflect other measures of quality of life (infant mortality or income) which are not used in the IDT and Swa classifications. More research is needed to better understand the tendency of coastal communities in Minahasa to be lesser developed. Regardless of the reasons, the fact that coastal communities tend to be poorer in Minahasa provides justification for designing development programs specifically for coastal villages.

Since rural coastal communities are heavily dependent on the coastal resource base for their livelihood, community-based coastal resources management initiatives can be an appropriate response to address the lesser developed state of coastal villages in Minahasa. Such programs however need to view coastal communities as unique geographic areas where the productive activities of many coastal residents are dependent on both land and sea-based resources. Hence an integrated approach to their development is needed which considers issues concerning the development and management of coastal agriculture, fisheries, freshwater resources and transportation infrastructure, among other factors.

There is no clear indication that fishers are the poorest of the poor in Minahasa. There are examples in North Sulawesi where fishers are better off than other occupational groups, whereas in other cases they tend to be poorer. Such variation is also seen among other provinces in Indonesia including South Sulawesi and South Sumatera.

South Sumatera: In the case of South Sumatera, fisher dominated communities tend to be better off or equal to farmer dominated communities. Using income as the criteria for level of development indicates that fisher dominated communities in the South Sumatera are not the poorest of the poor. Some fishers (crew) are among the poorest of the poor, but others (gear owners) clearly can be considered as among the better off. It is possible however, that the income of other occupational groups in the communities studied is so high that it is their income, not the fishers, that influence the high average household income. The IDT and Swa village development classifications rely on factors other than income and it is not known how the South Sumatera communities fare with respect to these classifications, or whether income is correlated to them. Further research in this area would be useful.

General Conclusions: Caution must be used in making generalized statements about fishers being poor without supporting empirical evidence for the

locality concerned. The tendency of coastal communities to be poorer in some localities is not necessarily related to the presence of fishers within the coastal communities. This may be surprising to some policy makers who often view the most obvious difference between coastal and non-coastal communities as the presence of a fisheries sector. This may lead to the mistaken judgement that the poor condition of the community is related to underdevelopment of the fisheries sector or that all fishing communities must be poor.

The diversity of the level of development between coastal and non-coastal communities, as well as within coastal communities is great. Such diversity is also evident in the level of well being between and within occupational groups. Development policies and management programs which are applied across communities and occupational groups without accounting for such differences are thus unlikely to succeed. Greater consideration therefore should be given to decentralized and flexible coastal management policies and programs for Indonesia which take into account the diversity of village development levels and the diversity in the well being of various coastal occupational groups.

REFERENCES

BPS. 1993. Statistik Potensi Desa Tahun 1993. Biro Pusat Statistik, Sulawesi Utara.

BPS. 1995. Penentuan Desa Tertinggal 1994. Penjelasan Singkat, 1995. Biro Pusat Statistik, Jakarta.

BPS. 1996. Statistik Potensi Desa se-Sulawesi Utara. 1996. Biro Pusat Statistik. Sulawesi Utara.

MREP. 1995. Studi sosial ekonomi dan lingkungan di kawasan pesisir dan laut Selat Bangka, Sumatera Selatan. PPLH Universitas Sriwijaya dan Ditjen Pembangunan Daerah. 125 p.

MREP. 1996a. Studi sosial ekonomi dan lingkungan di kawasan pesisir laut (MCMA) Manado Karakelang Sulawesi Utara. PSLH Universitas Sam Ratulangi dan Ditjen Pembangunan Daerah. 118 p.

MREP. 1996b. Studi sosial ekonomi, budaya dan lingkungan Proyek MREP Kawasan MCMA Biak Numfor - Irian Jaya. PSL Universitas Pattimura dan Ditjen Pembangunan Daerah. 111p.

MREP. 1996c. Studi sosial ekonomi dan lingkungan di kawasan pesisir dan laut (MCMA) Majene - Ujung Pandang, Sulawesi Selatan. PSLH Universitas Hasanuddin dan Ditjen Pembangunan Daerah. 201p.

MSE. 1996. Indonesia's Marine Environment: A summary of policies, strategies, actions and issues. Ministry of State for Environment, Jakarta. 86p.

NRMP. 1996. Economic value of fisheries to the residents of Bunaken National Marine Park. Natural Resources Management Project Report No. 62. BAPPENAS - Ministry of Forestry, assisted by USAID. Associates in Rural Development for Office of Rural and Environmental Management, USAID - Jakarta. 76p.

PMD. 1995. Kantor Pembangunan Masyarakat Desa (*Village Community Development Office*), Sulawesi Utara.

PMD, Kepala Bidang Pengembangan Desa. 1998. Personal communication, , Kantor Pengembangan Masyarakat Desa, Manado.

Pollnac, R.B., C. Rotinsulu, B.R. Crawford, P. Kussoy, and A. Siahainenia. 1998. An examination and comparison of Rumbia and Minanga: Control villages for the Coastal Resources Management Project Sites at Bentenan and Tumbak. Coastal Resources Center, University of Rhode Island, Narragansett, RI, USA. 23p.

Pollnac, R.B., F. Sondita, B. Crawford, E. Mantjoro, C. Rotinsulu, A. Siahainenia. 1997. Baseline assessment of socioeconomic aspects of resource use in the coastal zone of Bentenan and Tumbak. Coastal Resources Center, University of Rhode Island, Narragansett, RI, USA. 79p.

Pontoh, O. 1991. Keadaan sosial ekonomi masyarakat nelayan dan konservasi sumberdaya perairan di Taman Nasional Laut Bunaken dan sekitarnya, Sulawesi Utara. Fakultas Perikanan UNSRAT Manado, World Wide Fund for Nature, Pelestarian Hutan dan Perlindungan Alam, USAID-NRMP. 195p.

Jurnal PESISIR & LAUTAN

Indonesian Journal of Coastal and Marine Resources

ISSN 1410-7821, Volume 2, No. 1, 1999

Alamat Redaksi
(Editorial Address)
Pusat Kajian Sumberdaya Pesisir dan Lautan
(Center for Coastal and Marine Resources Studies)
Gedung Marine Center Lt. 4, Fakultas Perikanan IPB
Kampus IPB Darmaga Bogor 16680 INDONESIA
Tel/Fax. 62-251-621086, Tel. 62-251-626380
e-mail: dieter@indo.net.id

Halaman muka: Teluk Manado (foto: Bengen, D.G., 1998)